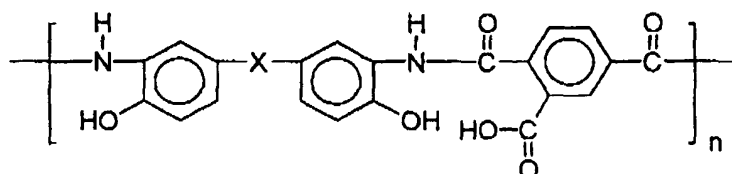


What is claim d is:

1. A positive photosensitive composition, comprising:
a poly(imide-benzoxazole) precursor prepared by the
reaction of trimellitic anhydride halide monomer
with bis(o-diaminophenol) monomer, wherein the
poly(imide-benzoxazole) comprises at least a
repeating unit as the structure below:



wherein the X is -O-, -S-, -C(CF₃)₂-, -C(CH₃)₂-, -
CO-, -CH₂-, -NHCO-, -SO₂-, -SO-, or a bond;
and

n is an integer from 10 to 100;

a photosensitizer; and

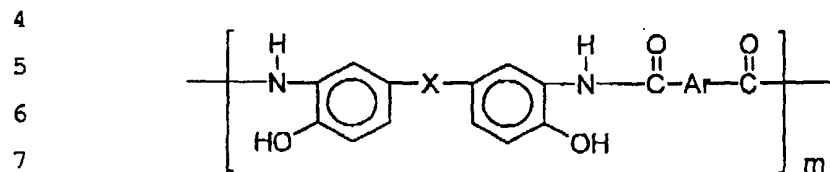
a solvent.

2. The positive photosensitive composition as claimed
in claim 1, wherein the poly(imide-benzoxazole) precursor is
prepared by the reaction of trimellitic anhydride chloride
with bis(o-diaminophenol).

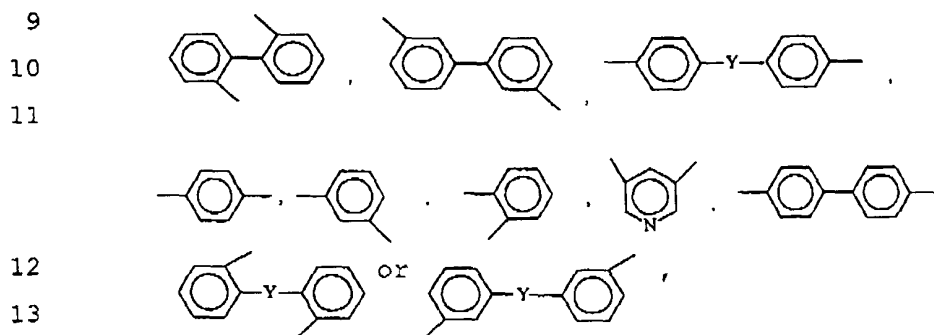
3. The positive photosensitive composition as claimed
in claim 1, wherein the poly(imide-benzoxazole) precursor is
prepared by the reaction of trimellitic anhydride chloride
with 2, 2-bis(3-amino-4-hydroxyphenol).

1 4. The positive photosensitive composition as claimed
2 in claim 1, wherein X of the poly(imide-benzoxazole)
3 precursor is $-\text{C}(\text{CF}_3)_2-$.

1 5. The positive photosensitive composition as claimed
2 in claim 1, wherein the poly(imide-benzoxazole) precursor
3 further comprises a repeating unit as the structure below:



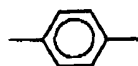
8 wherein X is as set forth in claim 1; Ar is



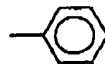
14 wherein Y is $-\text{O}-$, $-\text{S}-$, $-\text{C}(\text{CF}_3)_2-$, $-\text{C}(\text{CH}_3)_2-$, $-\text{CO}-$, $-\text{CH}_2-$, $-\text{SO}_2-$, or $-\text{SO}-$; and
15
16 m is an integer and $m + n = 10-100$.

1 6. The positive photosensitive composition as claimed
2 in claim 5, wherein the poly(imide-benzoxazole) precursor is
3 prepared by the reaction of trimellitic anhydride chloride
4 monomer, bis(o-diaminophenol) monomer, and terephthalate
5 dichloride monomer.

1 7. The positive photosensitive composition as claimed
 2 in claim 5, wherein, of the poly(imide-benzoxazole)
 3 precursor, X is $-\text{C}(\text{CH}_3)_2-$, Ar is



1 8. The positive photosensitive composition as claimed
 2 in claim 5, wherein, of the poly(imide-benzoxazole)
 3 precursor, X is $-\text{C}(\text{CH}_3)_2-$, Ar is

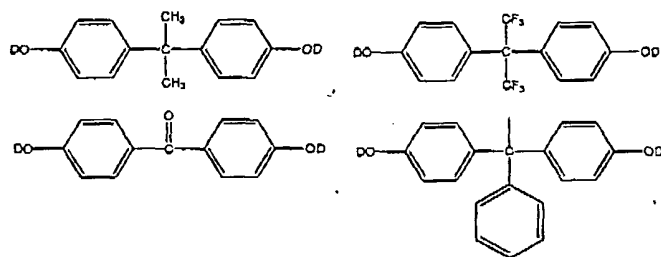


1 9. The positive photosensitive composition as claimed
 2 in claim 5, wherein, of the poly(imide-benzoxazole)
 3 precursor, $m + n = 10\sim 600$.

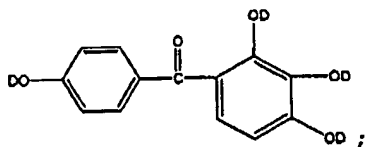
1 10. The positive photosensitive composition as claimed
 2 in claim 1, wherein the poly(imide-benzoxazole) precursor is
 3 20~60 % by weight.

1 11. The positive photosensitive composition as claimed
 2 in claim 10, wherein the poly(imide-benzoxazole) precursor
 3 is 10~40 % by weight.

1 12. The positive photosensitive composition as claimed
 2 in claim 1, wherein the photosensitizer comprises
 3 diazonaphthoquinones as the structures of



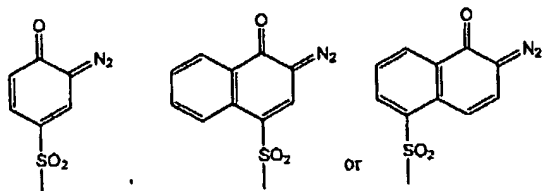
or



5

6

wherein D is hydrogen,



7

1 13. The positive photosensitive composition as claimed
2 in claim 1, wherein the photosensitizer is about 1-80 % by
3 weight.

1 14. The positive photosensitive composition as claimed
2 in claim 13, wherein the photosensitizer is about 10-40% by
3 weight.

1 15. The positive photosensitive composition as claimed
2 in claim 1, wherein the solvent comprises N-
3 methylpyrrolidinone, butyrolactone, N, N-dimethylamide, N,
4 N-dimethyl formamide, or mixtures thereof.

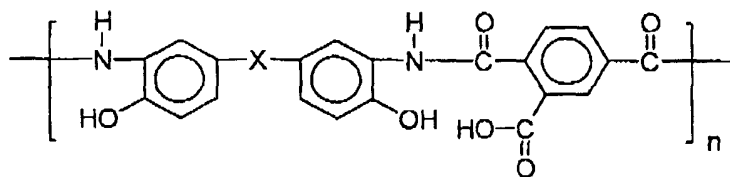
1 16. The positive photosensitive composition as claimed
2 in claim 1, wherein the solvent is about 20-90% by weight.

3 17. The positive photosensitive composition as claimed
4 in claim 16, wherein the solvent is about 40-80% by weight.

1 18. A method of pattern formation, comprising:

2 applying a positive photosensitive composition to form
3 a photoresist layer;
4 performing lithography on the photoresist layer to
5 obtain a pattern; and
6 hard baking the substrate to cause dehydrative
7 cyclization of the positive photosensitive
8 composition to obtain a final pattern;
9 wherein the positive photosensitive composition
10 comprises:

11 a poly(imide-benzoxazole) precursor prepared by
12 the reaction of trimellitic anhydride halide
13 monomer with bis(o-diaminophenol) monomer,
14 wherein the poly(imide-benzoxazole)
15 precursor comprises at least a repeating
16 unit as the structure below:



23 wherein the X is -O-, -S-, -C(CF₃)₂-, -C(CH₃)₂-
24 , -CO-, -CH₂-, -NHCO-, -SO₂-, -SO-, or a
25 bond; and

26 n is an integer from about 10 to 100;

27 a photosensitizer; and

a solvent.

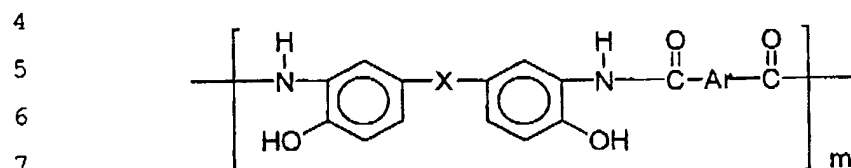
1 19. The method as claimed in claim 18, wherein the
2 poly(imide-benzoxazole) precursor is prepared by the

3 reaction of trimellitic anhydride chloride with bis(o-
4 diaminophenol).

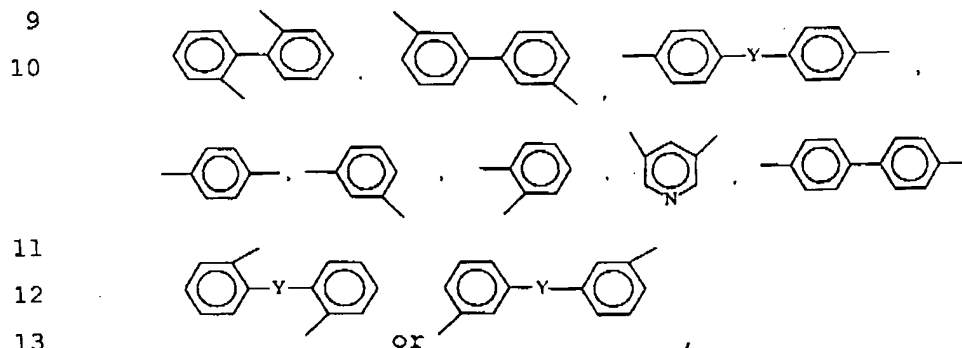
1 20. The method as claimed in claim 18, wherein the
2 poly(imide-benzoxazole) precursor is prepared by the
3 reaction of trimellitic anhydride chloride with 2, 2-bis(3-
4 amino-4-hydroxyphenol).

1 21. The method as claimed in claim 18, of the
2 poly(imide-benzoxazole) precursor, wherein X is $-\text{C}(\text{CF}_3)_2-$.

1 22. The method as claimed in claim 18, wherein the
2 poly(imide-benzoxazole) precursor further comprises a
3 repeating unit as the structure below:




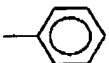
8 wherein X is as set forth in claim 1; Ar is



14 wherein Y is $-\text{O}-$, $-\text{S}-$, $-\text{C}(\text{CF}_3)_2-$, $-\text{C}(\text{CH}_3)_2-$, $-\text{CO}-$, $-\text{CH}_2-$, $-\text{SO}_2-$, or $-\text{SO}-$; and
15
16 m is an integer and $m + n = 10-100$.

1 23. The method as claimed in claim 22, wherein the
2 poly(imide-benzoxazole) precursor is prepared by the
3 reaction of trimellitic anhydride chloride monomer, bis(o-
4 diaminophenol) monomer, and diacid dichloride monomer.

1 24. The method as claimed in claim 22, wherein, of the
2 poly(imide-benzoxazole) precursor, X is $-C(CH_3)_2-$, Ar
3 is  .

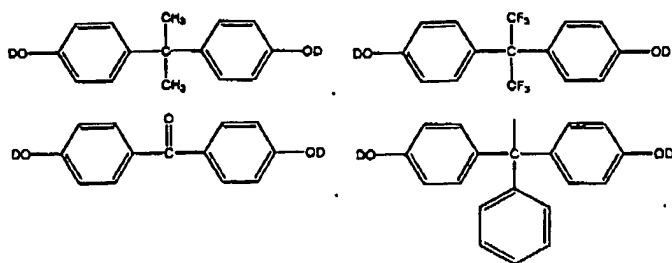
1 25. The method as claimed in claim 22, wherein, of the
2 poly(imide-benzoxazole) precursor, X is $-C(CH_3)_2-$, Ar
3 is  .

1 26. The method as claimed in claim 22, wherein, of the
2 poly(imide-benzoxazole) precursor, $m + n = 10 \sim 600$.

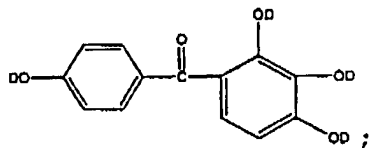
1 27. The method as claimed in claim 18, wherein the
2 poly(imide-benzoxazole) precursor is about 20~60 % by
3 weight.

1 28. The method as claimed in claim 27, wherein the
2 poly(imide-benzoxazole) precursor is about 10~40 % by
3 weight.

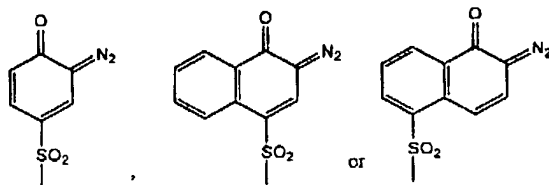
1 29. The method as claimed in claim 18, wherein the
2 photosensitizer comprises diazonaphthoquinones as the
3 structures of



or



wherein D is hydrogen,



30. The method as claimed in claim 18, wherein the photosensitizer is about 1-80% by weight.

31. The method as claimed in claim 30, wherein the photosensitizer is about 10-40% by weight.

32. The method as claimed in claim 18, wherein the solvent comprises N-methylpyrrolidinone, butyrolactone, N, N-dimethylamide, N, N-dimethyl formamide, or mixtures thereof.

33. The method as claimed in claim 18, wherein the solvent is about 20-90% by weight.

3 34. The method as claimed in claim 33, wherein the
4 solvent is about 40-80% by weight.

1 35. The method as claimed in claim 18, wherein the
2 lithography comprises:

3 pre-baking the substrate with a photoresist layer
4 thereon;

5 exposing the substrate using a mask under a light
6 source to obtain an exposure region; and

7 eliminating the exposure region by a hydrophilic
8 developer to obtain a pattern.

1 36. The method as claimed in claim 35, wherein the
2 light source is X-ray, electron beam, ultraviolet light, or
3 visible light.

4 37. The method as claimed in claim 35, wherein the
5 hydrophilic developer comprises alkali, primary amine,
6 secondary amine, tertiary amine, aminoalcohol, quaternary
7 amine salt, or mixtures thereof.